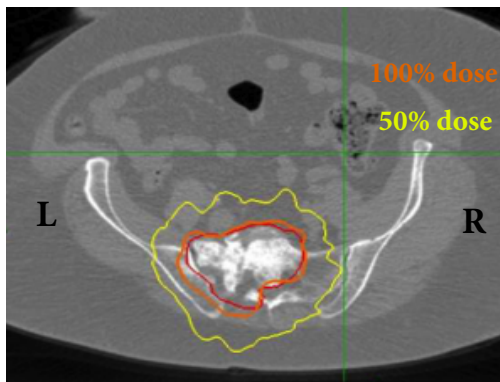
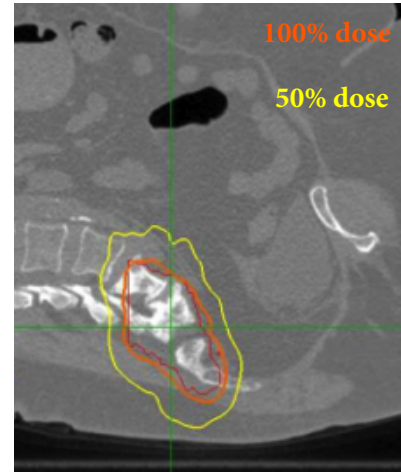


Patient Spotlight

Patient is a 58-year-old female with history of infiltrating ductal carcinoma of the left breast diagnosed and treated with total mastectomy in 2005. Patient began to experience pain to both the lower back and left rib in 2013. Diagnostics and biopsy confirmed oligometastasis of breast origin within the left sacrum and left sixth rib. No other metastasis were identified.

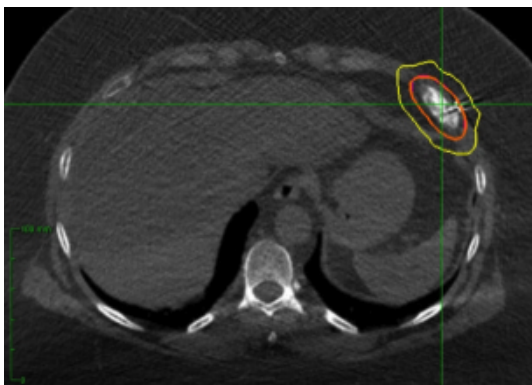
The patient is determined to be a candidate for CyberKnife stereotactic body radiotherapy. Treatments are planned and delivered with goals of tumor ablation of oligometastasis, elimination of pain in the treatment sites, and potential increase in disease-free survival and overall survival.



Cyberknife Treatment Approach Details of treatment are as follows:

Left sacral lesion: total prescription dose of 3,500 cGy delivered in 5 fractions of CyberKnife stereotactic body radiotherapy. Treatments delivered utilizing CyberKnife X-Site Spine tracking technique to precisely localize and track the treatment site in relation to the patient's spine with sub-millimeter accuracy.

Left lateral rib: 3 fiducial markers are placed in close proximity of the treatment site by Interventional Radiology prior to treatment planning. Total prescription dose of 1,800 cGy delivered in a single fraction. Treatment delivered utilizing fiducials to localize the treatment site and CyberKnife Synchrony to precisely track movement of the treatment site in real time throughout treatment delivery.



Cyberknife SBRT for oligometastasis

The term oligometastases, introduced in 1995 describes an intermediate state of cancer spread between localized disease and widespread metastases. Evidence has emerged that patients with limited metastatic disease, such as liver metastasis from colon or rectal cancer, can be cured by removal of the metastasis. Resection of liver metastasis from colorectal cancer has resulted in 5-year survival rates of 25%. The International Registry of Lung Metastases compiled a 5,206-patient cohort of patients reporting 10 and 15-year survival rates of 26% and 22% respectively following lung metastatectomy. Patients with fewer metastases and longer disease-free interval fared even better.

Cyberknife Stereotactic body radiotherapy (SBRT) enables highly focal treatment of cancer with single or few fractions of high-dose radiation. SBRT has demonstrated favorable rates of local control for primary and metastatic tumors and provides a treatment option for deep-seated tumors or for those who cannot undergo surgery. SBRT treatment of limited metastases has shown promising local control rates for treated metastases, ranging from 67% to 95%. Two- to 3-year survival rates have been reported in the range of 30% to 64%.

SBRT Evidence-based practice for extracranial oligometastases

- Stereotactic body radiotherapy results in a high control rate of treated metastases (~80%)
- About 20% of patients are progression free at 2–3 years after stereotactic body radiotherapy
- Toxicity is low
- Stereotactic body radiotherapy should be considered in patients with isolated metastases, especially if the disease-free interval > 6 months
- Randomised trials are needed to establish whether stereotactic body radiotherapy improves progression free and/or overall survival

Patients most likely to benefit from stereotactic body radiotherapy have:

- o Long disease-free interval
- o One to three metastases
- o Small metastases
- o Higher radiation dose delivered (biologic effective dose > 100Gy)

CyberKnife Advantages

- *Patient had an excellent response to Cyberknife with minimal radiation side effects and toxicity*
- *Normal tissues were spared as dose is uniquely distributed when utilizing Cyberknife's unique tracking capabilities for treated a moving target*
- *Treatment was quick-only 5 fractions were necessary*
- *No recovery time was necessary after treatment*
- *Cyberknife can be integrated with chemotherapy with minimal or no delay in administration of next cycle.*

Illinois Cyberknife (ILCK) at Lutheran General Hospital is one of only a few dedicated stereotactic radiosurgery programs in the Chicagoland area. Please call 847-723-0100 to discuss a patient, make a referral or schedule a consultation.

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